

## **Why do we explore the ocean?**

### **Background:**

Historically, explorers have been driven by a variety of motives. For some, the primary reason to explore was to expand their knowledge of the world. For others, economic interests provided powerful incentives, and many expeditions have launched on such missions as finding a sea route to access the spices of Asia, or quests for gold, silver, and precious stones. Political power and the desire to control large empires motivated other explorations, as did the desire to spread religious doctrines. In the case of space exploration, additional reasons have been offered, including understanding our place in the cosmos, gaining knowledge about the origins of our solar system and about human origins, providing advancements in science and technology, providing opportunities for international collaboration, and keeping pace with other nations involved in developing space technology. The first ocean exploration for the specific purpose of scientific research is often considered to be the voyage of the HMS Challenger, conducted between 1872-1876. The NOAA Ship Okeanos Explorer is the first Federal vessel specifically dedicated to exploring Earth's largely unknown ocean. Its technology makes it possible for people (including students in classrooms) to participate in these explorations from locations thousands of miles away. (NOAA 2016).

**Objective:** In this group activity, you will have the opportunity to investigate the question: "Why do we explore the ocean?"

### **Task 1: Exploration Vessels**

a. Review introductory information on the NOAA Ship Okeanos Explorer as well as information about the HMS Challenger. Use additional sites as needed as well.

<http://oceanexplorer.noaa.gov/okeanos/about.html>

<http://oceanexplorer.noaa.gov/okeanos/media/exstream/exstream.html>

<http://oceanexplorer.noaa.gov/backmatter/whatisexploration.html>

<http://oceanexplorer.noaa.gov/explorations/03mountains/background/challenger/challenger.html>

<http://oceanexplorer.noaa.gov/history/breakthru/breakthru.html>

<http://oceanexplorer.noaa.gov/gallery/history/history.html>

b. Describe the structure of the Okeanos vessel, its research capabilities and its exploratory equipment. Compare it to the technology of the HMS Challenger.

c. Create a Venn diagram to compare and contrast the vessels on the paper provided.

## **Task 2: Research**

Each student group should prepare an oral report that addresses the following questions:

- a. “We know more about the dead seas of Mars than our own ocean.” (Jean-Michel Cousteau). How can this be true? And even if it is, so what? Isn’t the deep ocean more or less the same, wherever you go?
- b. Historically, what are some reasons for human exploration?
- c. Today, are there any other reasons to explore Earth’s ocean?
- d. “Who are today’s ocean explorers?” Ocean Explorer Ocean AGE Careers Web page (<http://oceanexplorer.noaa.gov/edu/oceanage/welcome.html>). Describe two scientists. How are their backgrounds/jobs similar? How are they different?

## **Task 3: Jig-Saw Discussion**

Members of each group will be re-grouped to listen to the information collected by another group of students. Upon returning to your original group, please share the additional information you have learned.

*Class discussion will follow*

## **Task 4: Final Assessment**

Groups will now create a poster to answer the original question: Why do we explore? for display incorporating all of the information learned.

